

AMENDMENTS TO THE CLAIMS

1. (currently amended) An aqueous sizing composition comprising: (a) an emulsion comprising an alkenylsuccinic anhydride component containing alkenylsuccinic anhydride particles suspended in a first starch component containing emulsifying starch selected from the group consisting of non-ionic starches, anionic starches, cationic starches and mixtures thereof, and (b) a second starch component selected from the group consisting of non-ionic starches, cationic starches, anionic starches and mixtures thereof, wherein the alkenylsuccinic anhydride component and the starch in the emulsion and the second starch component are present at a starch:alkenylsuccinic anhydride weight ratio that is sufficiently high to enable the sizing composition to impart useful sizing properties to a fibrous substrate when the sizing composition contacts the fibrous substrate; wherein the starch component of the starch:alkenylsuccinic anhydride weight ratio is the total weight of the first starch component and the second starch component.

2. (original) The sizing composition of claim 1, wherein the starch:alkenylsuccinic anhydride weight ratio is at least about 10:1.

3. (original) The sizing composition of claim 1, wherein the emulsifying starch in the first starch component in the emulsion has a starch:alkenylsuccinic anhydride weight ratio ranging from about at least 0.2:1 to about 10:1.

4. (original) The sizing composition of claim 1, wherein the particles have a median particle size ranging from about 0.5 to about 20 microns.

5. (original) The sizing composition of claim 1, wherein the emulsion further comprises a surfactant component in an amount ranging from about 0.1 wt. % to about 20 wt. %, based on the total amount of alkenylsuccinic anhydride.

6. (currently amended) The sizing composition of claim 1, wherein the an alkenylsuccinic anhydride component includes hydrolyzed alkenylsuccinic anhydride in an amount ranging from about 1 to about 99%, based on the total weight of the emulsion:alkenylsuccinic anhydride component.

7. (original) The sizing composition of claim 1, wherein the sizing composition has a starch:alkenylsuccinic anhydride component weight ratio that is sufficiently high so that when the sizing composition treats a fibrous substrate, the treated fibrous substrate has a Cobb sizing of less than about 150 gsm for 30 minutes or about 100 gsm for two minutes.

8. (original) The sizing composition of claim 1, wherein the starch:alkenylsuccinic anhydride component weight ratio is sufficiently high so that if the sizing composition treats a fibrous substrate, the treated fibrous substrate retards ink penetration, giving an HST value of at least ten seconds.

9. (original) The sizing composition of claim 1, wherein the starch:alkenylsuccinic anhydride ratio is sufficiently high to minimize the sizing composition from coalescing at a temperature ranging from about 100 to about 180° F.

10. (original) The sizing composition of claim 1, wherein the suspended alkenyl succinic anhydride particles have a monomodal particle distribution.

11. (original) The sizing composition of claim 1, wherein the alkenyl succinic anhydride component comprising particles suspended in non-ionic and/or ionic starch have a bimodal or a multimodal particle distribution.

12-15. (canceled)

16. (currently amended) A process for making a sizing composition comprising the sequential steps of: (a) emulsifying alkenylsuccinic anhydride with a first starch component containing starch selected from the group consisting of non-ionic starches, ionic starches, and mixtures thereof, and thereby forming an emulsion, and (b) combining the emulsion with a second starch component selected from the group consisting of non-ionic starches, ionic starches, and mixtures thereof, and thereby forming a sizing composition comprising (1) an emulsion comprising an alkenylsuccinic anhydride component containing alkenylsuccinic anhydride particles suspended in a first starch component containing emulsifying starch selected from the group consisting of

non-ionic starches, ionic starches, and mixtures thereof, and (2) a second starch component selected from the group consisting of non-ionic starches, ionic starches and mixtures thereof, such that the alkenylsuccinic anhydride and the starch in the emulsion and the second starch component are present at a starch:alkenylsuccinic anhydride weight ratio that is sufficiently high to enable the sizing composition to impart useful sizing properties to a fibrous substrate when the sizing composition contacts the-fibrous substrate; wherein the starch component of the starch:alkenylsuccinic anhydride weight ratio is the total weight of the first starch component and the second starch component.

17-29. (canceled)

30. (currently amended) An aqueous sizing composition made by a process comprising: (a) emulsifying alkenylsuccinic anhydride with a first starch component containing starch selected from the group consisting of non-ionic starches, ionic starches, and mixtures thereof, and thereby forming an emulsion, and (b) combining the emulsion with a second starch component selected from the group consisting of non-ionic starches, ionic starches, and mixtures thereof, and thereby forming the sizing composition, wherein the composition comprises: (1) first component including an emulsion comprising an alkenylsuccinic anhydride component containing alkenylsuccinic anhydride particles suspended in a first starch component containing emulsifying starch selected from the group consisting of non-ionic starches, ionic starches, and mixtures thereof, and (2) a second starch component selected from the group consisting of non-ionic starches, ionic starches and mixtures wherein the alkenylsuccinic anhydride and the starch in the emulsion and the second starch component are present at a starch:alkenylsuccinic anhydride weight ratio that is sufficiently high to enable the sizing composition to impart useful sizing properties to a fibrous substrate when the sizing composition contacts the fibrous substrate; wherein the starch component of the starch:alkenylsuccinic anhydride weight ratio is the total weight of the first starch component and the second starch component.

31-32. (canceled)

33. (currently amended) An aqueous sizing composition comprising: (a) an emulsion comprising an alkyl or alkenyl ketene dimer component containing alkyl or alkenyl ketene dimer particles suspended in a first starch component containing emulsifying starch selected from the group consisting of non-ionic starches, anionic starches, and mixtures thereof, and (b) a second starch component selected from the group consisting of non-ionic starches, cationic starches, anionic starches and mixtures thereof, wherein the alkyl or alkenyl ketene dimer component and the starch in the emulsion and the second starch component are present at a starch: alkyl or alkenyl ketene dimer weight ratio that is sufficiently high to enable the sizing composition to impart useful sizing properties to a fibrous substrate when the sizing composition contacts the fibrous substrate; wherein the starch component of the starch:alkyl or alkenyl ketene dimer weight ratio is the total weight of the first starch component and the second starch component.

34. (new) The sizing composition of claim 1, wherein the second starch component is selected from the group consisting of non-ionic starches, anionic starches, and mixtures thereof.